

ABSTRACT FINAL ID: SM53B-01;

TITLE: Spatial and temporal signatures of flux transfer events in global simulations of magnetopause dynamics.

SESSION TYPE: Oral

SESSION TITLE: SM53B. Revelations from Multipoint Measurement: Space Plasma Processes and Dynamics III

AUTHORS (FIRST NAME, LAST NAME): Maria M Kuznetsova¹, David Gary Sibeck¹, Michael Hesse¹, David Berrios¹, Lutz Rastaetter¹, Gabor Toth², Tamas I. Gombosi²

INSTITUTIONS (ALL): 1. NASA/GSFC, Greenbelt, MD, United States.

2. University of Michigan, Ann Arbor, MI, United States.

Title of Team:

ABSTRACT BODY: Flux transfer events (FTEs) were originally identified by transient bipolar variations of the magnetic field component normal to the nominal magnetopause centered on enhancements in the total magnetic field strength. Recent Cluster and THEMIS multi-point measurements provided a wide range of signatures that are interpreted as evidence for FTE passage (e.g., crater FTEs, traveling magnetic erosion regions). We use the global magnetohydrodynamic (MHD) code BATS-R-US developed at the University of Michigan to model the global three-dimensional structure and temporal evolution of FTEs during multi-spacecraft magnetopause crossing events. Comparison of observed and simulated signatures and sensitivity analysis of the results to the probe location will be presented. We will demonstrate a variety of observable signatures in magnetic field profile that depend on space probe location with respect to the FTE passage. The global structure of FTEs will be illustrated using advanced visualization tools developed at the Community Coordinated Modeling Center.

KEYWORDS: [2724] MAGNETOSPHERIC PHYSICS / Magnetopause and boundary layers, [2784] MAGNETOSPHERIC PHYSICS / Solar wind/magnetosphere interactions, [7835] SPACE PLASMA PHYSICS / Magnetic reconnection, [7959] SPACE WEATHER / Models.

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SPONSOR NAME: Maria Kuznetsova

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